



Department of Energy
Germantown, MD 20874-1290

DEC 27 1999

Davor Z. Pevec, Esq.
Hawaii Tower, Suite 2000
745 Fort Street
Honolulu, Hawaii 96813

Dear Mr. Pevec:

Thank you for your facsimile of December 10, 1999, and companion e-mail transmitting a draft Memorandum of Understanding (MOU) for Enewetak. After careful review of your suggested changes to the Department of Energy's (DOE) first (December 1998) draft agreement, we have prepared the enclosed new draft for your consideration (Enclosure 1). To assist your review of our changes, we have included as Enclosure 2 a bolded/strikeout version of your December 10 draft, to show our proposed additions and deletions.

In revising your draft MOU, our principal goal has been to underscore the common effort of the parties to achieve shared goals, manifested by a sharing of responsibilities between DOE and the Enewetak Council. We have also modeled our text on the MOU for Rongelap, modified, where appropriate, to reflect the fact that the Enewetak community has been resettled on Enewetak Island since 1980. Specifically, for example:

Whole Body Counting

- DOE proposes to install at Enewetak Island a whole body counter (WBC) and associated electronics and software technically equivalent to the WBC system we installed at Rongelap Island. We have not included in our draft your reference to the lower limit of detection (LLD) of 10 nanocuries. I have been advised by Lawrence Livermore National Laboratory (LLNL) that the LLD is a function of the surrounding and natural radiation background. This natural radiation background comes from primordial radionuclides in the ground and man-made structures surrounding the WBC. Thus, it is impossible to guarantee a specific detection limit for a WBC prior to its installation. However, LLNL can optimize the WBC system to achieve the lowest possible LLD for the Enewetak environment, and our revision to your draft includes this undertaking.
- DOE undertakes to provide the WBC system, training of two technically qualified Enewetak residents to operate the WBC, salary payments for two WBC operators (up to 20 hours per week each), and expert technical support to maintain the WBC in good operating condition. We believe it is reasonable for the Enewetak Council to supply both the facility to house the WBC and to pay utility costs. Furthermore, in order to ensure that whole body counting is



available to the entire Enewetak community upon request. we believe the Council should keep the WBC facility open and staffed at least 40 hours per week.

- DOE has, and will continue in future to, protect the privacy of individual WBC and other Marshallese health data. This undertaking with respect to individual-specific WBC data is reflected in our new draft in Article 2.1(10) and 2.1(12). We have not, however, included in Article 2.1(12) your reference to the "U.S. Privacy Act." I am advised by DOE's Office of General Counsel that the Privacy Act covers "individuals," which is defined in the statute to include only U.S. citizens and resident aliens.
- With respect to information sharing: DOE will provide WBC results directly to the individuals concerned and, subject to the protection of individual privacy, to the Council and the Republic of the Marshall Islands (RMI) Government. In addition, DOE is willing to establish a record system and WBC database and make it available to the individuals, the public, and the Council and the RMI Government (subject to the protection of individual privacy). And, upon reasonable advance written request, DOE is willing to attend community meetings to keep the Council, the RMI Government, and the Enewetak community fully informed of DOE's activities under the MOU. In our view, the availability of all WBC monitoring data at all times to all interested persons obviates the need for the annual report which your December 10 draft proposed.

Environmental Surveillance and Other Human Monitoring

We have deleted your proposed provisions under this heading, for the following reasons:

- Given the results of the 1982 National Academy of Sciences study of Runit Island's Cactus Crater Dome facility, together with LLNL testing between 1993 and 1995, we see no technical basis to include in the MOU any additional DOE monitoring. If the Enewetak Council believes further monitoring is necessary, it may contract with LLNL or others to perform that work.
- At the RMI-DOE annual meeting in Honolulu, Hawaii, October 18-19, 1999, DOE undertook to confirm the types and quantities of tracer materials used in the U.S. nuclear testing program and support activities. Once completed, the results of this effort will provide the information from which DOE, the RMI, and the local atoll governments can make more informed decisions regarding the efficacy of any related environmental monitoring program. Pending the completion of our review of this matter, it is premature to include in the MOU provisions for DOE to undertake any such program.
- DOE, through LLNL, has conducted environmental monitoring in the Marshall Islands for more than 25 years. If the Enewetak Council desires an "objective quantitative re-evaluation" of this work, as proposed in your draft, we suggest the Council consider

retaining LLNL for this purpose, or having LLNL's work peer-reviewed by other experts, as is being done by other local atoll governments.

Additional Radiological Survey Measurements and Environmental Sampling

Article 3.1 of the new draft identifies the work necessary for DOE to complete its environmental characterization of Enewetak Atoll. If, during the MOU's term, the parties agree to the performance of "additional survey measurements and analyses of environmental samples," as your draft proposes, and appropriated funds are available to perform such work, the MOU may be amended accordingly.

Remediation and Resettlement of Enjebi and Other Islands of Enewetak Atoll

It is unclear why you substituted "To be completed later" for the provisions of our December 1998 draft, in which DOE proposed to provide recommendations for soil remediation and radiological monitoring in the event the Enewetak Council adopts a plan to remediate/resettle Enjebi or other islands of Enewetak Atoll. Because we believe those recommendations would be useful to the Council, we have restored the deleted provisions in our new draft MOU.

We look forward to concluding the MOU as soon as possible, and stand ready to discuss the new draft with you at your earliest convenience.

Sincerely,

A handwritten signature in black ink, appearing to read "Frank Hawkins", with a large, stylized loop at the end.

Frank Hawkins
Director
Office of International
Health Programs

2 Enclosures

**MEMORANDUM OF UNDERSTANDING
AMONG
THE UNITED STATES DEPARTMENT OF ENERGY
AND
THE GOVERNMENT OF THE REPUBLIC OF THE MARSHALL ISLANDS
AND
THE ENEWETAK/UJELANG LOCAL GOVERNMENT COUNCIL**

This Memorandum of Understanding ("MOU") is entered into among the United States Department of Energy ("DOE"), the Government of the Republic of the Marshall Islands ("RMI Government"), and the Enewetak/Ujelang Local Government Council ("Enewetak Council") (collectively the "Parties").

**Article 1
Purpose**

The purpose of this MOU is to establish a framework for cooperation among the Parties concerning the DOE's support activities for environmental and human monitoring, and remediation and resettlement at Enewetak Atoll.

**Article 2
Human Surveillance**

Whole-Body Counting

2.1 DOE will:

(1) Subject to (a) the Enewetak Council's performance of the undertakings in Article 2.2(1)-(3) and (b) DOE's selection of qualified Enewetakese to receive whole body counting training, install at Enewetak Island a whole body counter ("WBC") and associated computer-based electronics and software (the "WBC system"). The WBC system will be optimized for best available performance so as to achieve the lowest possible detection levels. The system will be technically equivalent to that currently installed at Rongelap Island, including: (a) a large NaI detector; (b) associated electronics (multichannel analyzer, computer, printer, etc.) and power supplies powered by electricity provided by the Enewetak Council; (c) a background reducing shield and positioning system (e.g., shadow-shielded chair); (d) computer software programs (e.g., ABACOS); (e) whole body calibration standards, such as BOMAD, containing a NIST traceable calibration source; and (f) manufacturer specification and operating manuals.

(2) Assist in the initial setup and calibration of the WBC, using appropriate phantoms and NIST traceable sources.

(3) Maintain the WBC in good operating condition, maintain quality assurance and quality control of the whole body counting data, and specify the data to be retrieved and reported.

(4) Provide to the Enewetak Council education requirements and other qualification criteria that will be used to identify two (2) Enewetak residents to undergo WBC operator training at a DOE-designated facility.

(5) Train two (2) qualified Enewetak residents for the day-to-day operation of the WBC. Operator technician training will include classroom instruction on basic principles of radioactivity, radiation detection and measurements, and practical factors training pertaining to WBC operation, daily WBC quality control (QC) checks, data collection, and record management.

(6) Pay the salaries of two (2) technically-qualified Enewetak residents, for up to twenty (20) hours per week each, at the rate of \$5.00 per hour, to perform whole body counting and related health physics tasks under DOE supervision and in accordance with written DOE protocols.

(7) Assist in the development of a questionnaire to be completed by persons who will undergo whole body counting.

(8) On an as-needed-basis, provide technical support or services as "troubleshooters" to WBC operator technician(s).

(9) Analyze and interpret raw WBC data (i.e., body burden) and convert to annual dose and committed effective dose equivalent (CEDE).

(10) Report promptly the results of the whole body counting, in writing and in easy-to-understand terms, to the individuals concerned and, subject to the protection of those individuals' privacy, to the RMI Government and the Enewetak Council.

(11) Provide recommendations to the Enewetak Council for the frequency of WBC measurements for workers engaged in radiological remediation or for other individuals engaged in activities with significant potential for intake of ^{137}Cs .

(12) Establish an auditable record system and WBC database that track individuals over time. The record system/database will include all raw WBC data collected by DOE, assignment of internal doses, and associated assumptions/methodologies employed. Individual-specific data will be disclosed to the individuals concerned (or to his/her guardian) upon those persons' written request, and will be made publicly available only subject to the protection of individuals' privacy.

(13) Participate, with reasonable advance written request from the RMI Government and/or the Enewetak Council, in periodic community or other meetings for the purpose of keeping the RMI Government, the Enewetak Council, and Enewetak people informed of surveillance data and their implications.

2.2 Enewetak Council will:

- (1) Provide and maintain a secure, air-conditioned facility on Enewetak Island that will accommodate the WBC system.
- (2) Conduct employment screening, using DOE-identified education and qualification criteria, that will identify two (2) Enewetak residents to undergo WBC operator training at a DOE designated facility.
- (3) Pay for the utilities and provide other logistical support necessary to maintain and operate the WBC facility.
- (4) Hire two (2) technically-qualified Enewetak residents to staff the WBC facility, and keep the facility open and staffed at least forty (40) hours per week, to permit on-request whole body counting service to the general Enewetak population and workers.
- (5) Participate with DOE in developing a questionnaire to be completed by persons who will undergo whole body counting, and translate the questionnaire into Marshallese.
- (6) Assist persons given whole body counts in filling out a questionnaire pertaining to diet and/or travel.
- (7) Be responsible for securing licenses or approval from the RMI Government for any material/equipment required for DOE assisted radiological monitoring and surveillance, including check-sources and calibration-sources that contain low-level radioactive materials.
- (8) Assist DOE in maintaining control and custody over all low-level radioactive check/calibration sources used at Enewetak Atoll for human monitoring, environmental surveillance, and island remediation.
- (9) Provide reasonable advance written notice to DOE of any request to participate in community meetings convened to keep the RMI Government and Enewetakese community apprised of DOE's human surveillance and monitoring support activities.

Article 3
Environmental Sampling

3.1 DOE will:

- (1) Complete the grid sampling characterization of Aeja and Lujor islands, and issue a report on environmental monitoring activities at Enewetak, Medren, Japtan, Anij, Aeja, Lujor, Allenbel, Lojwa, Bijire, Aomon, and Runit islands.
- (2) Complete the analysis of marine samples collected in 1998 and issue a final report.

Article 4
Remediation and Resettlement of Enjebi and Other Islands of Enewetak Atoll

4.1 Enewetak Council will keep DOE timely apprised of the status of the Council's deliberations concerning any plan to remediate/resettle Enjebi or other islands of Enewetak Atoll.

4.2 DOE will, upon request in connection with an Enewetak Council plan to remediate/resettle Enjebi Island or other islands of Enewetak Atoll, provide recommendations concerning soil remediation and develop a detailed radiological monitoring plan to support remediation/resettlement.

Article 5
RMI Government Undertakings

The RMI Government will:

- (1) Facilitate the grant of any licenses or other approvals for any material and equipment required for any DOE-assisted radiological monitoring, including equipment that emits low levels of ionizing radiation.
- (2) Provide DOE with reasonable advance written request(s) to participate in community or other meetings to keep the RMI Government, Enewetak Council, and the Enewetak people apprised of DOE's activities.
- (3) Provide such other assistance to DOE as the Parties may agree to in writing.

Article 6
General Conditions

6.1 The Parties will maintain close and regular communication, to ensure the effective coordination of DOE's activities at Enewetak Atoll.

6.2 Any notice or other communication in connection with this MOU will be in writing. All notices, requests, and other communications under this MOU will be given to or made upon the respective Parties as follows:

If to the RMI Government:

Minister of Foreign Affairs and Trade
P.O. Box 1349
Majuro, Republic of the Marshall Islands 96960
Facsimile: 011-692-625-4979

If to the Enewetak Council:

Enewetak/Ujelang Local Government Council
Mayor Neptali Peter
P.O. Box 1199
Majuro, Republic of the Marshall Islands 96960
Facsimile: 011-692-625-3506; and

Senator Ismael John
Nitijela
Majuro, Republic of the Marshall Islands 96960
Facsimile: 011-692-625-3506

with a copy to:

Davor Z. Pevec, Esq.
Hawaii Tower, Suite 2000
745 Fort Street
Honolulu, Hawaii 96813
Facsimile: 808-599-1609

If to DOE:

Mr. Frank Hawkins
U.S. Department of Energy
Office of International Health Programs
Attn: EH-63/GTN/270 Corporate Center
19901 Germantown Road
Germantown, MD 20874-1290
Telephone: 301-903-2476
Facsimile: 301-903-1413

If to DOE's Field Operations Manager:

Mr. William D. Jackson
U.S. Department of Energy
Pacific Area Support Office
P.O. Box 29939
Honolulu, HI 96820-2339
Telephone: 808-422-9211
Facsimile: 808-422-9217

6.3 Governing law: The laws and regulations of the United States will govern this MOU, as set forth in the Compact of Free Association between the RMI Government and the United States of America and in the Federal Programs and Services Agreement concluded pursuant thereto. All questions relating to the MOU arising during its term will be settled by the Parties by mutual agreement.

6.4 It is understood that the ability of DOE to carry out its undertakings under the MOU is subject to the availability of appropriated funds.

Article 7

Commencement, Amendment, Renewal and Termination

7.1 Cooperation under this MOU will commence on the date that the last signatory signs the MOU, and will continue for three (3) years.

7.2 By written agreement of the Parties, and with the concurrence of the U.S. Department of the Interior, this MOU may be amended at any time, and may be renewed for additional periods.

7.3 This MOU may be terminated by written agreement of the Parties, or may be terminated by any Party upon ninety (90) days written notice to the other Parties.

ACCEPTANCE:

Date: _____

Phillip Muller
Minister of Foreign Affairs and Trade
Republic of the Marshall Islands

Date: _____

Neptali Peter
Mayor
Enewetak/Ujelang Local Government

Date: _____

Paul J. Seligman, M.D., M.P.H.
Deputy Assistant Secretary
for Health Studies
U.S. Department of Energy

ACKNOWLEDGED BY:

Date: _____

Danny Aranza
Director
Office of Insular Affairs
U.S. Department of the Interior

MEMORANDUM OF UNDERSTANDING
AMONG
THE UNITED STATES DEPARTMENT OF ENERGY
AND
THE GOVERNMENT OF THE REPUBLIC OF THE MARSHALL ISLANDS
AND
THE ENEWETAK/UJELANG LOCAL GOVERNMENT COUNCIL

This Memorandum of Understanding ("MOU") is entered into among the United States Department of Energy ("DOE"), the Government of the Republic of the Marshall Islands ("RMI Government"), and the Enewetak/Ujelang Local Government Council ("Enewetak Council") (collectively the "Parties").

Article 1
Purpose

The purpose of this MOU is to establish a framework for cooperation among the Parties concerning the DOE's **support activities** for environmental and human monitoring, and remediation and resettlement ~~activities~~ at Enewetak Atoll.

Article 2
Human and Environmental Surveillance

2.1 Whole-Body Counting

~~To minimize internal exposures and health risks from internal exposure to Cs-137 and for demonstrating compliance with the adopted dose rate limit of 15 mrem per year above background from all exposure pathways, DOE and Enewetak Council will undertake the following activities:~~

2.1 DOE will:

(1) ~~Provide and maintain~~ Subject to (a) the Enewetak Council's performance of the undertakings in Article 2.2(1)-(3) and (b) DOE's selection of qualified Enewetakese to receive whole body counting training, install at Enewetak Island a whole body counter ("WBC") and associated ~~items~~ **computer-based electronics and software** (the "WBC system") ~~to be located on Enewetak Island. The WBC system shall have a sensitivity for detecting Cs-137 body burden with a lower limit of detection (LLD) not to exceed 10 nanocuries (nCi). The system shall~~ **will be optimized for best available performance so as to achieve the lowest possible detection levels. The system will be technically equivalent to that currently provided to RALGOV installed at Rongelap Island, and consist of the following including:** (a) a large NaI detector, (b) associated electronics ~~inclusive of power supply,~~ (multichannel analyzer, computer, printer, etc.) and power supplies powered by electricity provided by the **Enewetak Council**, (c) a background reducing shield and positioning system ~~chair~~ (e.g., shadow-shielded chair).

(d) computer software programs (e.g., ABACOS), (e) ~~bottle mannequin absorber calibration phantom~~ whole body calibration standards, such as BOMAD, containing a ~~with~~ NIST traceable calibration source, and (f) manufacturer specification and operating manuals.

~~(2) Provide technical support~~ Assist in the initial setup and calibration of the WBC and calibrate the WBC, using appropriate phantoms and NIST traceable sources.

(3) Maintain the WBC in good operating condition, maintain quality assurance and quality control of the whole body counting data, and specify the data to be retrieved and reported.

(4) Provide to the Enewetak Council education requirements and qualification criteria that will be used to identify two (2) Enewetak residents to undergo WBC operator training at a DOE-designated facility.

~~(3) Hire and~~ **(5) Train two (2) qualified** Enewetak residents for the day-to-day operation of the WBC. Operator technician training ~~should~~ **will** include classroom instruction on basic principles of radioactivity, radiation detection and measurements, and practical factors training pertaining to WBC operation, daily WBC quality control (QC) checks, data collection, and record management.

(6) Pay the salaries of two technically-qualified Enewetak residents, for up to 20 hours per week each, at the rate of \$5.00 per hour, to perform whole body counting and related health physics tasks under DOE supervision and in accordance with written DOE protocols.

~~(4) (7) Assist in the development of a questionnaire to be completed by persons subject to who will undergo whole body counting. Questionnaire should be made available in both English and Marshallese.~~

~~(5) (8) On an as-needed-basis, provide technical support or services as "troubleshooters" to WBC operator technician(s).~~

~~(6) (9) Analyze and interpret raw WBC data (i.e., body burden) and convert to annual dose and committed effective dose equivalent (CEDE).~~

~~(7) (10) Report promptly the results of the whole body counting, in writing and in easy-to-understand terms, to the individuals concerned and, subject to the protection of those individuals' privacy, the to the RMI Government and the Enewetak Council. Upon request, summary results of the WBC should be translated into Marshallese and made available to the respective individual(s).~~

~~(8) (11) Provide guidance recommendations to the Enewetak Council for defining the scope of human surveillance. Important parameters include the population of individuals to be routinely surveyed, the frequency of routine WBC measurements, and circumstances/conditions that warrant non-routine WBC measurements. For example, all individuals likely to participate in the resettlement program or who are for workers engaged in radiological remediation or for other individuals engaged in work other activities with significant potential for internal exposure should be given baseline, routine, and exit whole body counting; independent of resettlement or worker status, all individuals who are permanent residents of Enewetak should as a minimum receive a baseline WBC. In addition, discretionary or non-routine WBC should be administered under conditions with significant potential for internal exposure or where there is circumstantial evidence of significant internal exposure intake of ¹³⁷Cs.~~

(9) (12) Establish an auditable record system and WBC database that track individuals over time. The record system/database ~~should~~ will include all raw WBC data collected by DOE, assignment of internal doses, and associated assumptions/methodologies employed. ~~Records must be made available upon request to all individuals monitored (or to his/her guardian) but should be confidential and comply with standards defined under the U.S. Privacy Act. WBC records must contain a unique identifier (e.g., digitized photo ID) that will also serve as linkage to other records/databases.~~ Individual-specific data will be disclosed to the individuals concerned (or to his/her guardian) upon those persons' written request, and will be made publicly available only subject to the protection of individuals' privacy.

~~(10) (13) Participate, with reasonable advance written request from the RMI Government and/or the Enewetak Council, in periodic community or other hearings meetings for the purpose of keeping the RMI Government, the Enewetak Council, and Enewetak people informed of surveillance data and their implications.~~

~~(11) Submit, on an annual basis, a written report that summarizes and trends the results of WBC (and urinalysis) data. Annual report should include a summary discussion that is translated into Marshallese and contain information that not only defines average value of body burdens, doses, and risks but also provides data that define the distribution by age and sex as well as observed high end values.~~

~~(12) Pay the Enewetak Council the sum of \$500.00 per month for the space required to house the WBC system.~~

2.2 Enewetak Council will:

(1) Provide and maintain a secure, **air-conditioned** facility on Enewetak Island that will accommodate the WBC system.

(2) Conduct employment screening, using DOE-identified education and qualification criteria, that will identify two (2) ~~individuals~~ Enewetak residents with the necessary qualifications to undergo WBC operator training at a DOE designated facility.

(3) Pay for the utilities and provide other logistical support necessary to maintain and operate the WBC facility and ~~provide other logistical support and/or operations and facility maintenance as the parties may agree to in writing.~~

(4) Hire two technically-qualified Enewetak residents to staff the WBC facility, and keep the facility open and staffed at least forty (40) hours per week, to permit on-request whole body counting service to the general Enewetak population and workers.

(5) Participate with DOE in developing a questionnaire to be completed by persons who will undergo whole body counting, and translate the questionnaire into Marshallese.

~~(4)~~ (6) Assist persons given whole body counts in filling out a questionnaire pertaining to diet and/or travel.

~~(5)~~ (7) Be responsible for securing licenses or approval from the RMI Government for any material/equipment required for DOE assisted radiological monitoring and surveillance, including check-sources and calibration-sources that contain low-level radioactive materials.

~~(6)~~ (8) Assist DOE in maintaining control and custody over all low-level radioactive check/calibration sources used at Enewetak Atoll for human monitoring, environmental surveillance, and island remediation.

~~(7) Provide DOE's Field Operations Manager with reasonable advance written request(s) for additional assistance/support in future instances of unexpected/unanticipated environmental contamination of and human exposure to radiological hazards and non-radiological hazards.~~

(9) Provide reasonable advance written notice to DOE of any request to participate in community meetings convened to keep the RMI Government and Enewetakese community apprised of DOE's human surveillance and monitoring support activities.

~~2.2~~ Environmental Surveillance and Other Human Monitoring

~~DOE shall institute a limited environmental surveillance program for Runit Island and the Cactus Crater Dome facility as part of a long term institutional control measure. At a minimum, this would include yearly on-site inspection of the physical barriers (i.e., sea wall, dome cap, etc.) that contain wastes and monitoring of ground water in proximity of the Dome.~~

~~In light of recently declassified DOE documents that acknowledge past environmental releases of uranium-238 as well as several other non-radioactive elements (e.g., thallium, arsenic,~~

beryllium). DOE shall conduct a limited study that assesses the presence these contaminants in soils and representative food products (terrestrial and aquatic).

Lastly, a monitoring program shall be established for workers engaged in construction, agricultural remediation, and other work activities as well as for long term residents of Enewetak who may have the potential for incurring significant lung-body burdens of Pu-239/240 and Am-241 through inhalation and/or ingestion of contaminated soil, food, and other media. DOE and Enewetak Council will undertake the following activities:

DOE will:

(1) Conduct an objective quantitative re-evaluation, based on present day survey data, regarding the potential for significant future Pu-239/240 and Am-241 body burden/organ burden and associated radiation doses and health risks. The re-evaluation should critically review model parameters that were previously used to estimate doses from resuspension of soil and food ingestion as reported by Robison (1980¹ and 1998²).

(2) On the basis of this re-evaluation, first determine the need for human bioassay monitoring for actinides and secondly select an appropriate analytical method.

(3) Provide baseline urinalysis to workers/residents should monitoring be considered necessary and should analysis of urine be the preferred method for human monitoring.

(4) Institute an air monitoring program if the re-evaluation shows a need for human monitoring and neither *in vitro* bioassay (i.e., urinalysis) nor *in vivo* bioassay (i.e., lung counting) provide sufficiently sensitive/useful in assessing uptakes.

(5) Analyze bioassay/air monitoring data and provide estimates of associated organ doses and CEDEs for actinides.

(6) Maintain permanent records of any internal dose assessments in behalf of actinides. Records should employ the same individual ID code (e.g., digitized photo ID) in order to link WBC data with estimates of internal dose from actinides.

¹ Robison, W.L., W.A. Phillips, M.E. Mount, B.R. Clegg and C.J. Conrado, 1980, Reassessment of the Potential Radiological Doses for Residents Resettling Enewetak Atoll, UCRL-53066, Lawrence Livermore National Laboratory, Livermore, CA.

² Robison, W.L., T.F. Hamilton, C.L. Conrado, A.C. Stoker, and M.L. Stuart, 1998, Radiological Conditions at Enewetak Atoll, Draft Report, Lawrence Livermore National Laboratory, Livermore, CA.

~~(7) Establish guidance and instructions for urine sample collection method and sample preservation.~~

Enewetak Council will:

~~(1) Assist DOE in actinide monitoring program in matters pertaining to sample collection and sample preservation.~~

~~(2) Provide a secured facility for temporary sample storage prior to off site shipping and analysis.~~

~~(3) Assist DOE in matters of documentation pertaining to sample ID labeling, chain of custody, and shipping manifests.~~

~~(4) Assist DOE in disseminating the results of bioassay data to participants.~~

Article 3

~~Additional Radiological Survey Measurements and Environmental Sampling~~

3.1 DOE (or through its contractor) will:

(1) Complete the grid sampling characterization of Aej and Lujor islands, and issue a report on environmental monitoring activities at Enewetak, Medren, Japtan, Anij, Aej, Lujor, Allenbel, Lojwa, Bijire, Aomon, and Runit islands.

(2) Complete the analysis of marine samples ~~(northern lagoon)~~ collected in 1998 and issue a final report.

~~(3) Provide additional survey measurements and analyses of environmental samples in instances of unanticipated events/observations associated with future remediation and revegetation activities. (For example, recent excavation/trenching on Enewetak Island for agricultural purposes has revealed unexpected sub-surface soil horizons high in organic matter. These layers appear to have been backfilled and, therefore, have the potential for contamination levels that may be well above those suggested by previous survey measurements.)~~

~~(4) Provide the Enewetak Council with at least two (2) micro R field survey instruments and several (4-6) Geiger Mueller counters equipped with both a conventional open-closed window "hot dog" probe and a thin window "pan cake" probe. (These instruments will be employed in the field to screen suspected areas of soil contamination and for "frisking" of personnel for skin and clothing contamination.)~~

3.2 Enewetak Council will:

~~(1) Employ the above referenced field instruments to screen uncovered soils or previously unmonitored suspect media and monitor field workers for skin/clothing contamination in such instances.~~

~~(2) Submit in writing a request for more quantitative analyses of environmental media in instances where field screening measurements are suggestive of contamination in excess of anticipated levels.~~

Article 4

Remediation and Resettlement of Enjebi and Other Islands of Enewetak Atoll

~~To be completed later.~~

4.1 Enewetak Council will keep DOE timely apprised of the status of the Council's deliberations concerning any plan to remediate/resettle Enjebi or other islands of Enewetak Atoll.

4.2 DOE will, upon request in connection with an Enewetak Council plan to remediate/resettle Enjebi Island or other islands of Enewetak Atoll, provide recommendations concerning soil remediation and develop a detailed radiological monitoring plan to support remediation/resettlement.

~~**Article 5**~~

~~**Resettlement of Enjebi and Other Islands of Enewetak Atoll**~~

~~To be completed later.~~

Article 6 5

RMI Government Undertakings

The RMI Government will:

(1) Facilitate the grant of any licenses or other approvals for any material and equipment required for any DOE-assisted radiological monitoring, including equipment that emits low levels of ionizing radiation.

(2) Provide DOE with reasonable advance written request(s) to participate in community or other meetings to keep the RMI Government, Enewetak Council, and the Enewetak people apprised of DOE's activities.

(3) Provide such other assistance to DOE as the Parties may agree to in writing. .

Article 7 6
General Conditions

6.1 The Parties will maintain close and regular communication, to ensure the effective coordination of DOE's activities at Enewetak Atoll.

~~7-16.2~~ Any notice or other communication in connection with this MOU will be in writing. All notices, requests, and other communications under this MOU will be given to or made upon the respective Parties as follows:

If to the RMI Government:

Minister of Foreign Affairs and Trade
P.O. Box 1349
Majuro, Republic of the Marshall Islands 96960
Facsimile: 011-692-625-4979

If to the Enewetak Council:

Enewetak/Ujelang Local Government Council
Mayor Neptali Peter
P.O. Box 1199
Majuro, Republic of the Marshall Islands 96960
Facsimile: 011-692-625-3506; and

Senator Ismael John
Nitijela
Majuro, Republic of the Marshall Islands 96960
Facsimile: 011-692-625-3506

with a copy to:

Davor Z. Pevec, Esq.
Hawaii Tower, Suite 2000
745 Fort Street
Honolulu, Hawaii 96813
Facsimile: 808-599-1609

If to DOE:

Mr. Frank Hawkins
U.S. Department of Energy
Office of International Health Programs
Attn: EH-63/GTN/270 Corporate Center
19901 Germantown Road
Germantown, MD 20874-1290
Telephone: 301-903-2476
Facsimile: 301-903-1413

If to DOE's Field Operations Manager:

Mr. William D. Jackson
U.S. Department of Energy
Pacific Area Support Office
P.O. Box 29939
Honolulu, HI 96820-2339
Telephone: 808-422-9211
Facsimile: 808-422-9217

~~7.2~~ 6.3 Governing law: The laws and regulations of the United States will govern this MOU, as set forth in the Compact of Free Association between the RMI Government and the United States of America and in the Federal Programs and Services Agreement concluded pursuant thereto. All questions relating to the MOU arising during its term will be settled by the Parties by mutual agreement.

~~7.3~~ 6.4 It is understood that the ability of DOE to carry out its undertakings under the MOU ~~and the DOE Support Plan~~ is subject to the availability of appropriated funds.

Article 8 7

Commencement, Amendment, Renewal and Termination

~~8.1~~ 7.1 Cooperation under this MOU will commence on the date that the last signatory signs the MOU, and will continue for three (3) years.

~~8.2~~ 7.2 By written agreement of the Parties, and with the concurrence of the U.S. Department of the Interior, this MOU may be amended at any time, and may be renewed for additional periods.

~~8.3~~ 7.3 This MOU may be terminated by written agreement of the Parties, or may be terminated by any Party upon ninety (90) days written notice to the other Parties.

ACCEPTANCE:

Date: _____

Phillip Muller
Minister of Foreign Affairs and Trade
Republic of the Marshall Islands

Date: _____

Neptali Peter
Mayor
Enewetak/Ujelang Local Government

Date: _____

Paul J. Seligman, M.D., M.P.H.
Deputy Assistant Secretary
for Health Studies
U.S. Department of Energy

ACKNOWLEDGED BY:

Date: _____

Danny Aranza
Director
Office of Insular Affairs
U.S. Department of the Interior